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GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
NOAKES, SUZANNE MARIE	
ART UNIT	**PAPER NUMBER**
1656	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary	Application No.	Applicant(s)	
	10/516,317	MIYAWAKI ET AL.	
	Examiner	Art Unit	
	SUZANNE M. NOAKES	1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 11-18* is/are pending in the application.

4a) Of the above claim(s) *1-9,16 and 17* is/are withdrawn from consideration.

5)☒ Claim(s) *12 and 13* is/are allowed.

6)☒ Claim(s) *11,14,15 and 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Claims

1. The amendments to the claims, specification and abstract filed 07 April 2008 are acknowledged. Applicants have cancelled claim 10. Claims 1-9 and 11-18 are pending; claims 1-9 and 16-17 remain withdrawn from consideration as being non-elected. Claims 11-15 and 18 are subject to Examination on the merits.

Withdrawal of Rejections/Objections

2. Any rejection/objection recited in the previous Office action and not explicitly restated below is hereby withdrawn.

3. The objection to the specification is withdrawn in view Applicants amendments to insert the continuity data in the first line of the specification.

4. The objection to claims 10 and 18 is withdrawn as Applicants have cancelled claim 10 rendering the objection to said moot and amended claim 18 to depend from elected claim11 rather than a non-elected claim.

5. The rejection of claims 10-13 under 35 U.S.C. 101 – Non-statutory is withdrawn. Applicants have cancelled claim 10 rendering the rejection to this claim moot; claims 11-13 have been amended to recite “An isolated DNA", thus making said claims statutory subject matter.

6. The rejection of claims 10, 12 and 13 for lacking written description and enablement (scope of enablement) is withdrawn for these claims (it is noted, however, the rejections of record are maintained for the remaining claims).

Claim 10 has been cancelled rendering said rejections moot.

Claim 12 has been amended and now recites only the DNA sequence of SEQ ID NO: 2 which is fully described and enabled in the specification (see Examples 1-4).

Upon further reconsideration, the rejection of claim 13 is withdrawn as this claim is limited to what is fully described and enabled in the specification (see Examples 1-4).

7. The rejection of claims 10-15 and 18 for Obvious-Type Double Patenting over copending Application No. 10/516,314 is withdrawn and is rendered moot by the abandonment of said copending Application.

8. The rejection of claims 10 and 12 under 35 U.S.C. 102(b) as anticipated by Lukyanov et al. (US 6,969,597) is withdrawn for these claims (however, maintained for claims 11, 14, 15 and 18).

Claim 10 is cancelled rendering said rejection moot.

Claim 12 has been amended to recite and limit the DNA sequence to that of SEQ ID NO: 2. Thus the sequence as taught by Lukyanov et al. (which is 48.5% identity to SEQ ID NO: 2) no longer anticipates said claim 12.

Maintained Rejections/Objections

Objections to the Oath or Declaration

9. A new oath or declaration is required because of following informalities. The wording of an oath or declaration cannot be amended. If the wording is not correct or if all of the required affirmations have not been made or if it has not been properly subscribed to, a new oath or declaration is required. The new oath or declaration must

properly identify the application of which it is to form a part, preferably by application number and filing date in the body of the oath or declaration. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because: the title of the application is not "Chromoprotein."

Claim Rejections - 35 USC § 112 – 1st paragraph

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Written Description:

11. Claims 11, 14, 15 and 18 are rejected under 35 U.S.C. § 112, first paragraph, written description, as failing to comply with the written description requirement. The claims contain subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant claims are directed to a genus of DNAs of either one of followings: (a) DNA encoding the amino acid sequence shown in SEQ ID NO: 1 and (b) any DNA encoding ***an*** amino acid sequence which comprises a deletion, substitution and/or addition of one or several amino acids with respect to the amino acid sequence shown in SEQ ID NO: 1, and having light-absorbing properties.

The details of the rejection can be found in the previous Office action dated 10 October 2007, pp. 5-7.

Scope of Enablement:

12. Claims 11, 14, 15 and 18 are rejected under 35 U.S.C. 11-2, first paragraph, as failing to comply with the enablement requirement, because the specification, while being enabling for an isolated nucleic acid sequence comprising SEQ ID NO: 2 which encodes a chromoprotein from *Cnidopus japonicus* which is SEQ ID NO: 1 or SEQ ID NO: 2 having various mutations as disclosed in sequences SEQ ID NOs: 12, 14, 16, 18, 20 and 22 (encodes proteins SEQ ID Nos: 11, 13, 15, 17, 19 and 21, respectively) or one to nine amino acid substitutions of SEQ ID NO: 1 (Applicants disclose changes to positions 26, 28, 41, 64, 80, 143, 145, 158, 199), does not reasonably provide enablement for: any DNA encoding ***an*** amino acid sequence which comprises a deletion, substitution and/or addition of one to twenty amino acids with respect to the amino acid sequence shown in SEQ ID NO: 1, and having light-absorbing properties. Therefore, the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The factors to be considered in determining whether undue experimentation is required are summarized in *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988). The Court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key Word is 'undue,' not 'experimentation.'" (Wands, 8 USPQ2d 1404). Clearly, enablement of a claimed invention cannot be predicated on the basis of quantity of experimentation required to

make or use the invention. "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." (Wands, 8 USPQ2d 1404). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. While all of these factors are considered, a sufficient amount for a prima facie case is discussed below.

Claims 11, 14, 15 and 18 are so broad as to encompass any DNA encoding an amino acid sequence which comprises a deletion, substitution and/or addition of one to twenty amino acids with respect to the amino acid sequence shown in SEQ ID NO: 1, and having light-absorbing properties.

The claims rejected under this section of U.S.C. 112, first paragraph, do not place any structural limits on the "any DNA encoding an amino acid sequence which comprises a deletion, substitution and/or addition of one to twenty amino acids with respect to the amino acid sequence shown in SEQ ID NO: 1." Since the nucleic acids encoding a polypeptide determines its structural and functional properties, predictability of which nucleic acid sequence can be used while obtaining the desired function in the encoded protein requires a knowledge of and guidance with regard to which nucleic acids and amino acids of the polypeptide's sequence, if any, are conserved (i.e. expectedly intolerant to modification), and detailed knowledge of the ways in which the

nucleic acid sequence and its encoded polypeptide's structure relates to its desired function and to its three-dimensional structure (e.g. a properly folded protein).

The specification does not support the broad scope of the claims which encompass all modifications and fragments of any DNA encoding an amino acid sequence which further may comprise up to 20 deletions, substitutions and/or additions of amino acids with respect to the amino acid sequence shown in SEQ ID NO: 1 because the specification does not establish: (A) a rational and predictable scheme for modifying any nucleic acid residue with an expectation of obtaining a fully functioning and properly folded polypeptide; and (B) the specification provides insufficient guidance as to which 20 combinations of changes will likely to be successful in SEQ ID NO: 1 or which of the up to 20 changes can occur in any of the amino acid sequences encompassed by the shorter sequences of SEQ ID NO: 1 (e.g. "an amino acid sequence of SEQ ID NO: 2).

The problem of prediction of protein's structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex. While it is known that many amino acid substitutions are generally possible in any given protein, the positions within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of success is limited. Certain positions in the sequence are critical to the protein's structure/function relationship, such as various sites or regions directly involved in binding, activity and in providing the correct three-dimensional spatial orientation of binding and active sites. Particular regions may also be critical determinants of

antigenicity. These regions can tolerate only relatively conservative substitutions or no substitutions as all. However, Applicant has provided little or no guidance beyond the mere presentation of sequence data to enable one of ordinary skill in the art to determine, without undue experimentation, the positions in the protein which are tolerant to change (e.g. by amino acid substitutions or deletions or insertions), and the nature and extent of changes that can be made in these positions. Although the specification outlines art-recognized procedures for producing and screening for active protein variants, this is not adequate guidance as to the nature of active derivatives that may be constructed, but is merely an invitation to the artisan to use the current invention as a starting point for further experimentation. Even though various modified positions are taught in the specification which alter the chromophores light absorbing capabilities this is not be sufficient, as the ordinary artisan would immediately recognize that an the polypeptide must assume the proper three-dimensional configuration to be active, which conformation is dependent upon the surrounding residues; therefore substitution or non-essential residues can often destroy activity. Due to the large quantity of experimentation necessary to generate the infinite number of derivatives recited in the claims and screen the same for activity, the lack of direction/guidance presented in the specification regarding which structural features are required in order to provide activity, the absence of working examples directed to the same, the complex nature of the invention, the state of the prior art which established the unpredictability of the effects of mutation on protein structure and function, and the breadth of the claims which fail to recite any structural or functional limitations, undue experimentation would be required

of the skilled artisan to make and/or use the claimed invention in its full scope.

It is noted that the scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of any DNA encoding an amino acid sequence which comprises a deletion, substitution and/or addition of one to twenty amino acids with respect to the amino acid sequence shown in SEQ ID NO: 1, while having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. The specification only describes DNA encoding a polypeptide of SEQ ID NO: 1 that has three simultaneous changes (see SEQ ID NO: 21, for example, Example 5).

It is noted that while most of the instant rejection is consistent with the previous rejection of record, the substantive changes made to that which is indicated as being enabled (e.g. the scope has been broadened) makes the instant rejection a new rejection.

Claim Rejections - 35 USC § 102

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. Claims 11, 14, 15 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Lukyanov et al. (US 6969597). Lukyanov et al. teach nucleic acids isolated from *Anemonia sulcata*, wherein said nucleic acid encodes non-aggregating chromo/fluoroproteins and mutants thereof (col. 1 line 65). Lukyanov et al. teach a

polynucleotide of SEQ ID NO: 9, which encodes a polypeptide which has 62.5% sequence identity to SEQ ID NO: 1 of the instant application (see SEQ ID NO: 1 sequence alignment Result 1, database: Issued_Patents_NA) and wherein SEQ ID NO: 9 of Lukyanov et al. has a 48.2% sequence identity to instant SEQ ID NO: 2 (col. 37), (see SEQ ID NO: 2 sequence alignment Result 1, database: Issued_Patents_NA) thus anticipating claims 11. Lukyanov et al. also teach a DNA sequence (see in the attached sequence alignment) encoding an amino acid sequence, which comprises a deletion, substitution and/or addition of to twenty amino acids with respect to SEQ ID NO: 1, wherein said amino acid sequence is a fluorescent protein, anticipating claim 11. In the Experimental section, Lukyanov et al. teach nucleic acids encoding non-aggregating chromo/fluoroproteins and mutants were cloned into pQE30 vector and transformed into *E. coli* to express fluorescent proteins (col. 31 lines 30-35), (claims 14 and 15). The reference also teaches kits comprising nucleic acid and vectors that can be engineered to express the fluoroproteins (col. 3 line 40), thus anticipating claim 18.

Because the part (b) of claim 11 recites, DNA encoding ***an*** amino acid sequence which comprises a deletion, substitution, and/or addition of one to twenty amino acids of SEQ ID NO: 1 ((although it is noted in claims 15 and 18), "***an*** amino acid sequence" can mean as few as two consecutive amino acids. Thus, conceivably, as few as two consecutive amino acids, wherein only one of the two need to be identical to SEQ ID NO: 1, could anticipate the claim because as noted above, all proteins and peptides can absorb light to some extent (not all of them, however, are able to emit light). However, given that Lukyanov et al. teach a polypeptide that has at least two contiguous amino

acids in common with the instant SEQ ID NO: 2 (which encodes SEQ ID NO: 2), and given that this polypeptide not only absorbs light but also emits it, the nucleic acids encoding said proteins and kits thereof as taught by Lukyanov et al. anticipate claims 11, 14, 15 and 18.

Response to Arguments

15. Applicant's arguments filed 07 April 2008 concerning the maintained rejections of record have been fully considered but they are not persuasive.

Written Description:

The rejection of claims 11, 14, 15 and 18 have been maintained for the reasons of record. Applicants traverse and assert that the claims have been sufficiently described in the specification. In particular, it is asserted that in addition to the disclosure of SEQ ID NO: 1, the instant specification discloses the complete nucleotide sequences encoding several fluorescent proteins including SEQ ID NOs: 12, 14, 16, 18, 20, and 22. It also further asserted that the specification describes methods for introducing a desired mutation into nucleotide sequences (see page 12, first full paragraph), and one of ordinary skill in the art would know how such mutations correspond to protein structure. It is also asserted that the specification provides guidance with regard to specific amino acid mutations and their impact on the corresponding protein's function, i.e. the protein's light absorbing and/or light emitting characteristics. In addition, the specification describes properties associated with the disclosed protein structures, for example, absorption maxima, molar absorption

coefficient, pH stability, and fluorescent spectra (see, e.g., page 5, line 7 through page 7, line 6; page 7, lines11-15; and Figures 1-12). Thus, the specification provides written description support of the disclosed and claimed genus, including a sufficient number of representative species of the genus and sufficient recitation of physical, structural, chemical, and functional properties of the disclosed and claimed subject matter. (For all of these arguments/remarks, see Remarks, p. 12 last paragraph, to p. 13, 1st paragraph).

However, the Examiner disagrees with Applicants assertions. It is noted that SEQ ID NO: 1, 2, 12, 14, 16, 18, 20 and 22 have been fully described in the specification (and notably, claims 12 and 13, directed to these sequences, are not included in the written description rejection of record). Nonetheless, independent claim 11 recites in part (b): "DNA encoding ***an*** amino acid sequence" (claims 15 and 18 also have similar language) and it further states the said sequence "comprises a deletion, substation and/or addition of one to twenty". The former is interpreted to mean a peptide as small as two contiguous amino acids up to the full length SEQ ID NO: 1. The later opens up the number of substitutions because of the "comprising" language thus it is not just limited to one to twenty. Thus, the genus of polypeptides and peptides of SEQ ID NO: 1 is enormous; however, as noted by Applicants, the only representative species of DNA that fall within this genus is SEQ ID NOs: 2, 12, 14, 16, 18, 20 and 22. However, these are not considered to be representative of the diverse structural species found within said genus. With regards to Applicants assertions that introducing mutations into nucleotide sequences is described in the specification (applicants point to

p. 12, 1st full paragraph), it is noted that this description is a generalized description for the introduction of mutations into nucleotide sequences rather than one that describes introducing mutations into SEQ ID NO: 2 and further which mutations are critical to the encoded proteins structure and function. Applicants assert that one skilled in the art would know how these mutations would correspond to the proteins structure; however, the Examiner disagrees because the overall three-dimensional structure of the encoded protein of SEQ ID NO: 1 is not known and there has been no definitive biochemical structural characterization of said protein which one skilled in the art would have at hand to know which peptide fragments of SEQ ID NO: 1, those having one to twenty mutations made thereto or those of SEQ ID NO: 1 in full which have one to twenty amino acid mutations made thereto will have the requisite structure function correlation. Applicants assert the specification provides guidance with regard to specific amino acid mutations and their impact on the corresponding protein's function, i.e. the protein's light absorbing and/or light emitting characteristics. However, there are many more amino acid mutations encompassed within the claims which might disrupt the tertiary structure of said protein, thus precluding said protein from ever folding properly. Furthermore, it is noted that all proteins have light absorbing properties, thus this kind of 'functional limitation' does not distinguish the function of the mutant proteins. It is noted that the function and unique properties of chromophores, however, is their ability to absorb light at one wavelength and re-emit said light at a different wavelength, thus producing a shift in the wavelength/spectrum and thus said protein containing said chromophore emits a different colored light. As noted, all proteins will absorb light to some extent or another.

Furthermore, it is also noted that no where is it disclosed in the specification where these critical amino acids are located and one skilled in the art has no idea either because, as stated, there is no three-dimensional structure for this specific protein and there is no extensive biochemical characterization of this protein in comparison to other well known green fluorescent proteins. With regards to the point that the specification describes the proteins properties for absorption maxima, molar absorption coefficient, pH stability, and fluorescent spectra, it is noted Applicants have described these properties only for proteins encoded by SEQ ID NOs: 2, 12, 14, 16, 18, 20 and 22; however, there are no other representative species described which additionally have these properties. Thus, when all things are considered, the claims are deemed to lack sufficient written description to claim the broad genus of DNA molecules encoding proteins having light-absorbing properties.

Scope of Enablement:

Applicants traverse the rejection of record by stating that the claims as amended, are fully enabled for the full scope of the invention in accordance with the factors outlined in *In re Wands* 858 F.2d 731,737, 8 USPQ2d 1400,1404 (Fed. Cir. 1988).

Applicants assert that the specification, in combination with the prior art, provides sufficient guidance with respect to the encompassed sequences, such that one of ordinary skill in the art could make and use the invention without undue experimentation. Applicants further assert that the skill level of one of ordinary skill in this particular art is high, and that one of ordinary skill in the art would know, based on

the instant disclosure and the prior art, those amino acid sequences and even those amino acids residues involved in the protein's light- absorption properties, and therefore, which amino acids could be deleted, substituted, and/or added. (see Remarks, p. 15, 1st paragraph).

However, it is noted that all proteins can absorb light to some extent, as noted, not all can re-emit the absorbed light. Nonetheless, while Applicants do disclose which amino acids can shift the absorption spectrum of light by modifying certain amino acids (see, for example, Example 5), what is not disclosed is the amino acids necessary for a fully functioning, properly folded polypeptide. There is no comparison to any other chromophoric polypeptides thus one skilled in the art is not apprised if there is any conservation whatsoever between this polypeptide and others disclosed in the prior art.

Applicants also emphasize that the disclosure provides the detailed sequence structure for exemplary proteins encompassed within their invention and their corresponding nucleic acids and teaches where particular amino acids, which can be modified to alter the proteins' light-absorbing and/or light- emitting properties (Applicants point to page 9, line 19 through page 10, line 18; Examples 3-5 on pages 23- 26; and Figures 1-12). Furthermore, one of ordinary skill in the art would be familiar with methods of making and/or isolating mutants and variants of the disclosed and claimed subject matter based on the guidance provided by the specification and the state of the art and one of ordinary skill in the art would know how such mutations correspond to protein structure. (see Remarks, p. 15, paragraphs, two and three). Thus, it is asserted that the invention is enabled for its full scope as claimed.

However, the Examiner disagrees with these assertions because as noted in the previous paragraph, the exemplary sequences disclosed as SEQ ID NOs: 11, 13, 15, 17, 19 and 21 (encoded by SEQ ID NOs: 12, 14, 16, 18, 20 and 22) teach has no more than three amino acids substituted from SEQ ID NO: 2 (see Specification, Example 5, sequence 21 encoded by SEQ ID NO: 22). However, as noted above, these affect only the light absorbing properties of the bound chromophore; however, no where else is it disclosed where the essential amino acids for conservation of structure might be (e.g. properly folded polypeptide). In addition, while the specification discloses the specification disclosed only three mutations at anyone time; however, the claims encompass up to 20. However, one skilled in the art is not apprised which other 17 amino acids can be changed or where to add ones to which would result in a functioning polypeptide. While the enablement requirement is not precluded by the necessity for some experimentation, said experimentation must not be undue. However, given the lack of information in the instant specification, the disclosure does not disclose sufficient information to one skilled in the art to practice the claimed invention with any sort of guidance and direction to enable the full scope of the invention. As such, this would result in excessive and undue experimentation.

Allowable Subject Matter

16. The following is a statement of reasons for the indication of allowable subject matter: Claims 12 and 13 are allowed as the prior art does not teach any of SEQ ID NOs: 2, 12, 14, 16, 18, 20 or 22. In addition, all of these sequences are fully described

and enabled in the specification thus satisfying all 35 U.S.C. 112 1st paragraph requirements.

Conclusion

17. Claims 11, 14, 15, and 18 are rejected. Claims 12 and 13 are allowed.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUZANNE M. NOAKES whose telephone number is (571)272-2924. The examiner can normally be reached on 7.00 AM-3.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathleen Kerr Bragdon can be reached on 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Suzanne M. Noakes/
Patent Examiner, Art Unit 1656

27 May 2008